SEQUENCE LISTING

<110> ASHMAN, Claire
ELLIS, Jonathan Henry

<120> IMMUNOGENIC COMPOSITION COMPRISING AN IL-13 ELEMENT AND T CELL EPITOPES, AND ITS THERAPEUTIC USE

<130> PG4938

<140> Not Yet Assigned
<141> 2005-02-25

<150> PCT/GB03/03703
<151> 2003-08-28

<150> GB 0304672.9
<151> 2003-02-28

<150> GB 0220212.5
<151> 2002-08-30

<160> 68

<170> FastSEQ for Windows Version 4.0

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<211> 112
<212> PRT
<213> Homo sapien IL-13

<400> 1

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Val	Asn	Ile	Thr	Gln	Asn	Gln	Lys	Ala	Pro	Leu	Cys	Asn	Gly	Ser	Met
			20					25					30		
Val	Trp	Ser	Ile	Asn	Leu	Thr	Ala	Gly	Met	Tyr	Cys	Ala	Ala	Leu	Glu
		35					40					45			
Ser	Leu	Ile	Asn	Val	Ser	Gly	Cys	Ser	Ala	Ile	Glu	Lys	Thr	Gln	Arg
	50					55					60				
Met	Leu	Ser	Gly	Phe	Cys	Pro	His	Lys	Val	Ser	Ala	Gly	Gln	Phe	Ser
65					70					75					80
Ser	Leu	His	Val	Arg	Asp	Thr	Lys	Ile	Glu	Val	Ala	Gln	Phe	Val	Lys
				85					90					95	
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<210> 2
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<212> PRT
<213> Murine IL-13

<400> 2

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			20					25					30		
Gly	Ser	Met	Val	Trp	Ser	Val	Asp	Leu	Ala	Ala	Gly	Gly	Phe	Cys	Val
		35					40					45			
Ala	Leu	Asp	Ser	Leu	Thr	Asn	Ile	Ser	Asn	Cys	Asn	Ala	Ile	Tyr	Arg
	50					55					60				
Thr	Gln	Arg	Ile	Leu	His	Gly	Leu	Cys	Asn	Arg	Lys	Ala	Pro	Thr	Thr
65					70					75					80
Val	Ser	Ser	Leu	Pro	Asp	Thr	Lys	Ile	Glu	Val	Ala	His	Phe	Ile	Thr
				85					90					95	

Lys Leu Leu Ser Tyr Thr Lys Gln Leu Phe Arg His Gly Pro Phe
100 105 110

<210> 3
<211> 111
<212> PRT
<213> Porcine IL-13

<400> 3
Gly Pro Val Pro Pro His Ser Thr Ala Leu Lys Glu Leu Ile Glu Glu
1 5 10 15
Leu Val Asn Ile Thr Gln Asn Gln Lys Thr Pro Leu Cys Asn Gly Ser
20 25 30
Met Val Trp Ser Val Asn Leu Thr Thr Ser Met Gln Tyr Cys Ala Ala
35 40 45
Leu Glu Ser Leu Ile Asn Ile Ser Asp Cys Ser Ala Ile Gln Lys Thr
50 55 60
Gln Arg Met Leu Ser Ala Leu Cys Ser His Lys Pro Pro Ser Glu Gln
65 70 75 80
Val Pro Gly Lys His Ile Arg Asp Thr Lys Ile Glu Val Ala Gln Phe
85 90 95
Val Lys Asp Leu Leu Lys His Leu Arg Met Ile Phe Arg His Gly
100 105 110

<210> 4
<211> 112
<212> PRT
<213> Bovine IL-13

<400> 4
Ser Pro Val Pro Ser Ala Thr Ala Leu Lys Glu Leu Ile Glu Glu Leu
1 5 10 15
Val Asn Ile Thr Gln Asn Gln Lys Val Pro Leu Cys Asn Gly Ser Met
20 25 30
Val Trp Ser Leu Asn Leu Thr Ser Ser Met Tyr Cys Ala Ala Leu Asp
35 40 45
Ser Leu Ile Ser Ile Ser Asn Cys Ser Val Ile Gln Arg Thr Lys Lys
50 55 60
Met Leu Asn Ala Leu Cys Pro His Lys Pro Ser Ala Lys Gln Val Ser
65 70 75 80
Ser Glu Tyr Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Leu Lys
85 90 95
Asp Leu Leu Arg His Ser Arg Ile Val Phe Arg Asn Glu Arg Phe Asn
100 105 110

<210> 5
<211> 111
<212> PRT
<213> Canine IL-13

<400> 5
Ser Pro Val Thr Pro Ser Pro Thr Leu Lys Glu Leu Ile Glu Glu Leu
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Val Asn Ile Thr Gln Asn Gln Ala Ser Leu Cys Asn Gly Ser Met Val
20 25 30
Trp Ser Val Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Glu Ser
35 40 45
Leu Ile Asn Val Ser Asp Cys Ser Ala Ile Gln Arg Thr Gln Arg Met
50 55 60
Leu Lys Ala Leu Cys Ser Gln Lys Pro Ala Ala Gly Gln Ile Ser Ser
65 70 75 80
Glu Arg Ser Arg Asp Thr Lys Ile Glu Val Ile Gln Leu Val Lys Asn
85 90 95
Leu Leu Thr Tyr Val Arg Gly Val Tyr Arg His Gly Asn Phe Arg
100 105 110

<210> 6
<211> 111
<212> PRT
<213> Rat IL-13
<400> 6

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            20                  25                  30
Asn Ser Ser Met Val Trp Ser Val Asp Leu Thr Ala Gly Gly Phe Cys
        35                  40                  45
Ala Ala Leu Glu Ser Leu Thr Asn Ile Ser Ser Cys Asn Ala Ile His
    50                  55                  60
Arg Thr Gln Arg Ile Leu Asn Gly Leu Cys Asn Gln Lys Ala Ser Asp
65                  70                  75                  80
Val Ala Ser Ser Pro Pro Asp Thr Lys Ile Glu Val Ala Gln Phe Ile
                85                  90                  95
Ser Lys Leu Leu Asn Tyr Ser Lys Gln Leu Phe Arg Tyr Gly His
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<210> 7
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<212> PRT
<213> Cynomolgus
il-13

<400> 7

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Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met
            20                  25                  30
Val Trp Ser Ile Asn Leu Thr Ala Gly Val Tyr Cys Ala Ala Leu Glu
        35                  40                  45
Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Lys Thr Gln Arg
    50                  55                  60
Met Leu Asn Gly Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser
65                  70                  75                  80
Ser Leu Arg Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Lys
                85                  90                  95
Asp Leu Leu His Leu Lys Lys Leu Phe Arg Glu Gly Gln Phe Asn
            100                 105                 110
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<210> 8
<211> 112
<212> PRT
<213> Rhesus IL-13

<400> 8

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Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met
            20                  25                  30
Val Trp Ser Ile Asn Leu Thr Ala Gly Val Tyr Cys Ala Ala Leu Glu
        35                  40                  45
Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Lys Thr Gln Arg
    50                  55                  60
Met Leu Asn Gly Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser
65                  70                  75                  80
Ser Leu Arg Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Lys
                85                  90                  95
Asp Leu Leu Val His Leu Lys Lys Leu Phe Arg Glu Gly Arg Phe Asn
            100                 105                 110
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<210> 9
<211> 112
<212> PRT
<213> Marmoset IL-13

<400> 9
Gly Pro Val Pro Pro Tyr Thr Ala Leu Lys Glu Leu Ile Glu Glu Leu
 1   5   10   15
Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met
            20   25   30
Val Trp Ser Ile Asn Met Thr Ala Gly Val Tyr Cys Ala Ala Leu Glu
        35   40   45
Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Lys Thr Gln Arg
    50   55   60
Met Leu Ser Gly Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser
65   70   75   80
Ser Leu Leu Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Lys
                85   90   95
Asp Leu Leu Arg His Leu Arg Lys Leu Phe His Gln Gly Thr Phe Asn
            100   105   110

<210> 10
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

<400> 10
Gly Pro Val Pro Pro Ser Ser Ala Leu Lys Glu Leu Ile Glu Glu Leu
 1   5   10   15
Ala Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met
            20   25   30
Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Asp
        35   40   45
Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Arg Thr Gln Arg
    50   55   60
Ile Leu Ser Ala Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser
65   70   75   80
Ser Leu Arg Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Thr
                85   90   95
Asp Leu Leu Val His Leu Lys Arg Leu Phe Arg Gln Gly Thr Phe Asn
            100   105   110

<210> 11
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

<400> 11
Gly Pro Val Pro Pro Ser Thr Ala Leu Arg Glu Leu Ile Glu Glu Leu
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Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met
            20   25   30
Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Glu
        35   40   45
Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Lys Thr Gln Arg
    50   55   60
Met Leu Gly Gly Phe Cys Pro His Lys Phe Asn Asn Phe Thr Val Ser
65   70   75   80
Phe Trp Leu Arg Val Pro Lys Val Ser Ala Ser His Leu Glu Asp Thr
                85   90   95

Lys Ile Glu Val Ala Gln Phe Val Lys Asp Leu Leu Leu His Leu Lys
100 105 110
Lys Leu Phe Arg Glu Gly Arg Phe Asn
115 120

<210> 12
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

<400> 12
Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser
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Ala Ser His Leu Glu Gly Pro Val Pro Pro Ser Thr Ala Leu Arg Glu
20 25 30
Leu Ile Glu Glu Leu Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu
35 40 45
Cys Asn Gly Ser Met Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr
50 55 60
Cys Ala Ala Leu Glu Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile
65 70 75 80
Glu Lys Thr Gln Arg Met Leu Gly Gly Phe Cys Pro His Lys Val Ser
85 90 95
Ala Gly Gln Phe Ser Ser Leu His Val Arg Asp Thr Lys Ile Glu Val
100 105 110
Ala Gln Phe Val Lys Asp Leu Leu Leu His Leu Lys Lys Leu Phe Arg
115 120 125
Glu Gly Arg Phe Asn
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<210> 13
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Murine IL-13

<400> 13
Gly Pro Val Pro Arg Ser Val Ser Leu Pro Leu Thr Leu Lys Glu Leu
1 5 10 15
Ile Glu Glu Leu Ser Asn Ile Thr Gln Asp Gln Thr Pro Leu Cys Asn
20 25 30
Gly Ser Met Val Trp Ser Val Asp Leu Ala Ala Gly Gly Phe Cys Val
35 40 45
Ala Leu Asp Ser Leu Thr Asn Ile Ser Asn Cys Asn Ala Ile Tyr Arg
50 55 60
Thr Gln Arg Ile Leu His Gly Leu Cys Asn Arg Lys Phe Asn Asn Phe
65 70 75 80
Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser Ala Ser His Leu
85 90 95
Glu Asp Thr Lys Ile Glu Val Ala His Phe Ile Thr Lys Leu Leu Ser
100 105 110
Tyr Thr Lys Gln Leu Phe Arg His Gly Pro Phe
115 120

<210> 14
<211> 132
<212> PRT
<213> Artificial Sequence

<220>

<223> Chimaeric Murine IL-13

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Ala Ser His Leu Glu Gly Pro Val Pro Arg Ser Val Ser Leu Pro Leu
20 25 30
Thr Leu Lys Glu Leu Ile Glu Glu Leu Ser Asn Ile Thr Gln Asp Gln
35 40 45
Thr Pro Leu Cys Asn Gly Ser Met Val Trp Ser Val Asp Leu Ala Ala
50 55 60
Gly Gly Phe Cys Val Ala Leu Asp Ser Leu Thr Asn Ile Ser Asn Cys
65 70 75 80
Asn Ala Ile Tyr Arg Thr Gln Arg Ile Leu His Gly Leu Cys Asn Arg
85 90 95
Lys Ala Pro Thr Thr Val Ser Ser Leu Pro Asp Thr Lys Ile Glu Val
100 105 110
Ala His Phe Ile Thr Lys Leu Leu Ser Tyr Thr Lys Gln Leu Phe Arg
115 120 125
His Gly Pro Phe
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<210> 15
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Murine IL-13

<400> 15
Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser
1 5 10 15
Ala Ser His Leu Glu Gly Pro Val Pro Arg Ser Val Ser Leu Pro Val
20 25 30
Thr Leu Lys Glu Leu Ile Glu Glu Leu Thr Asn Ile Thr Gln Asp Gln
35 40 45
Thr Pro Leu Cys Asn Gly Ser Met Val Trp Ser Val Asp Leu Ala Ala
50 55 60
Gly Gly Phe Cys Val Ala Leu Asp Ser Leu Thr Asn Ile Ser Asn Cys
65 70 75 80
Asn Ala Ile Phe Arg Thr Gln Arg Ile Leu His Ala Leu Cys Asn Arg
85 90 95
Lys Ala Pro Thr Thr Val Ser Ser Leu Pro Asp Thr Lys Ile Glu Val
100 105 110
Ala His Phe Ile Thr Lys Leu Leu Thr Tyr Thr Lys Asn Leu Phe Arg
115 120 125
Arg Gly Pro Phe
130

<210> 16
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<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

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Tyr Val His Ser Asp Gly Ser Tyr Pro Lys Asp Lys Phe Glu Lys Ile
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Asn Gly Thr Trp Tyr Tyr Phe Asp Ser Ser Gly Tyr Met Leu Ala Asp
20 25 30
Arg Trp Arg Lys His Thr Asp Gly Asn Trp Tyr Trp Phe Asp Asn Ser
35 40 45
Gly Glu Met Ala Thr Gly Trp Lys Lys Ile Ala Asp Lys Trp Tyr Tyr

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    50                  55                  60
Phe Asn Glu Glu Gly Ala Met Lys Thr Gly Trp Val Lys Tyr Lys Asp
65                  70                  75                  80
Thr Trp Tyr Tyr Leu Asp Ala Lys Glu Gly Ala Met Gln Tyr Ile Lys
                85                  90                  95
Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Gly Val Met Val Ser Asn
            100                 105                 110
Ala Phe Ile Gln Ser Ala Asp Gly Thr Gly Trp Tyr Tyr Leu Lys Pro
        115                 120                 125
Asp Gly Thr Leu Ala Asp Arg Pro Glu Gly Pro Val Pro Pro Ser Ser
    130                 135                 140
Ala Leu Lys Glu Leu Ile Glu Glu Leu Ala Asn Ile Thr Gln Asn Gln
145                 150                 155                 160
Lys Ala Pro Leu Cys Asn Gly Ser Met Val Trp Ser Ile Asn Leu Thr
                165                 170                 175
Ala Gly Met Tyr Cys Ala Ala Leu Asp Ser Leu Ile Asn Val Ser Gly
            180                 185                 190
Cys Ser Ala Ile Glu Arg Thr Gln Arg Ile Leu Ser Ala Phe Cys Pro
        195                 200                 205
His Lys Val Ser Ala Gly Gln Phe Ser Ser Leu Arg Val Arg Asp Thr
    210                 215                 220
Lys Ile Glu Val Ala Gln Phe Val Thr Asp Leu Leu Val His Leu Lys
225                 230                 235                 240
Arg Leu Phe Arg Gln Gly Thr Phe Asn
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<210> 17
<211> 220
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

<400> 17
Ser Ser His Ser Ser Asn Met Ala Asn Thr Gln Met Lys Ser Asp Lys
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Ile Ile Ile Ala His Arg Gly Ala Ser Gly Tyr Leu Pro Glu His Thr
            20                  25                  30
Leu Glu Ser Lys Ala Leu Ala Phe Ala Gln Gln Ala Asp Tyr Leu Glu
        35                  40                  45
Gln Asp Leu Ala Met Thr Lys Asp Gly Arg Leu Val Val Ile His Asp
    50                  55                  60
His Phe Leu Asp Gly Leu Thr Asp Val Ala Lys Lys Phe Pro His Arg
65                  70                  75                  80
His Arg Lys Asp Gly Arg Tyr Tyr Val Ile Asp Phe Thr Leu Lys Glu
                85                  90                  95
Ile Gln Ser Leu Glu Met Thr Glu Asn Phe Glu Thr Gly Pro Val Pro
            100                 105                 110
Pro Ser Ser Ala Leu Lys Glu Leu Ile Glu Glu Leu Ala Asn Ile Thr
        115                 120                 125
Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met Val Trp Ser Ile
    130                 135                 140
Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Asp Ser Leu Ile Asn
145                 150                 155                 160
Val Ser Gly Cys Ser Ala Ile Glu Arg Thr Gln Arg Ile Leu Ser Ala
                165                 170                 175
Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser Ser Leu Arg Val
            180                 185                 190
Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Thr Asp Leu Leu Val
        195                 200                 205
His Leu Lys Arg Leu Phe Arg Gln Gly Thr Phe Asn
    210                 215                 220


<210> 18
<211> 133
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<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

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Ala Ser His Leu Glu Gly Pro Val Pro Pro Ser Ser Ala Leu Lys Glu
            20   25   30
Leu Ile Glu Glu Leu Ala Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu
        35   40   45
Cys Asn Gly Ser Met Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr
    50   55   60
Cys Ala Ala Leu Asp Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile
65   70   75   80
Glu Arg Thr Gln Arg Ile Leu Ser Ala Phe Cys Pro His Lys Val Ser
                85   90   95
Ala Gly Gln Phe Ser Ser Leu Arg Val Arg Asp Thr Lys Ile Glu Val
            100   105   110
Ala Gln Phe Val Thr Asp Leu Leu Val His Leu Lys Arg Leu Phe Arg
        115   120   125
Gln Gly Thr Phe Asn
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<210> 19
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

<400> 19
Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser
 1   5   10   15
Ala Ser His Leu Glu Gly Pro Val Pro Pro Ser Ser Ala Leu Lys Ile
            20   25   30
Leu Ile Glu Glu Leu Ala Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu
        35   40   45
Cys Asn Gly Ser Met Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr
    50   55   60
Cys Ala Ala Leu Asp Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile
65   70   75   80
Glu Arg Thr Gln Arg Ile Leu Ser Ala Phe Cys Pro His Lys Val Ser
                85   90   95
Ala Gly Gln Phe Ser Ser Leu Arg Val Arg Asp Thr Lys Ile Glu Val
            100   105   110
Ala Gln Phe Val Thr Asp Leu Leu Val His Leu Lys Arg Leu Phe Arg
        115   120   125
Gln Gly Thr Phe Asn
    130

<210> 20
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<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

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Gly Pro Val Pro Pro Ser Ser Ala Leu Lys Glu Leu Ile Glu Glu Leu
 1   5   10   15
Ala Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met

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            20                  25                  30
Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Asp
        35                  40                  45
Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Arg Thr Gln Arg
    50                  55                  60
Ile Leu Ser Ala Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser
65                  70                  75                  80
Ser Leu His Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Thr
                85                  90                  95
Asp Leu Leu Val His Leu Lys Arg Leu Phe Arg Gln Gly Arg Phe Asn
            100                 105                 110


<210> 21
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

<400> 21
Gly Pro Val Pro Pro Ser Thr Ala Leu Lys Glu Leu Ile Glu Glu Leu
 1               5                  10                  15
Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met
            20                  25                  30
Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Asp
        35                  40                  45
Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Arg Thr Gln Arg
    50                  55                  60
Ile Leu Ser Ala Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser
65                  70                  75                  80
Ser Leu Arg Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Thr
                85                  90                  95
Asp Leu Leu Val His Leu Lys Lys Leu Phe Arg Gln Gly Thr Phe Asn
            100                 105                 110


<210> 22
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimaeric Homo Sapien IL-13

<400> 22
Gly Pro Val Pro Pro Ser Ser Ala Leu Arg Glu Leu Ile Glu Glu Leu
 1               5                  10                  15
Ala Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met
            20                  25                  30
Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Glu
        35                  40                  45
Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Asp Lys Thr Gln Arg
    50                  55                  60
Met Leu Ser Ala Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser
65                  70                  75                  80
Ser Leu His Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Lys
                85                  90                  95
Asp Leu Leu Val His Leu Lys Arg Leu Phe Arg Asp Gly Arg Phe Asn
            100                 105                 110


<210> 23
<211> 1260
<212> DNA
<213> Artificial Sequence
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<220>
<223> Plasmid pCDNmIL13CDFC

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ttctgtgtct ctccctctga cccttaagga gcttattgag gagctgagca acatcacaca 180
agaccagact cccctgtgca acggcagcat ggtatggagt gtggacctgg ccgctggcgg 240
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ctttattaca aaactgctca gctacacaaa gcaactgttt cgccacggcc ccttcctgga 480
ggtcctgttc cagggaccag gatccgagcc caaatcggcc gacaaaactc acacatgccc 540
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cctggtcaaa ggcttctatc ccagcgacat cgccgtggag tgggagagca atgggcagcc 1020
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gatgcatgag gctctgcaca accactacac gcagaagagc ctctccctgt ctccgggtaa 1200
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<210> 24
<211> 1260
<212> DNA
<213> Artificial Sequence

<220>
<223> Plasmid pCDNmIL13p30FC

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cgttagcttt tggttgcgtg ttcctaaagt atctgctagt catttagaag ggccggtgcc 180
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acaagaccag actcccctgt gcaacggcag catggtatgg agtgtggacc tggccgctgg 300
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tacccagcgt attttgcatg gcctctgtaa ccgcaaggcc cccactacgg tctccagcct 420
ccccgatacc aaaatcgaag tagcccactt tattacaaaa ctgctcagct acacaaagca 480
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<220>
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<400> 25

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<220>
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<400> 27
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<210> 28
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<220>
<223> primer

<400> 28
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<210> 29
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<400> 31
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<400> 32
Asn Ile Thr Gln
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<210> 33
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<400> 33
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<400> 34
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<210> 35
<211> 2
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<400> 35
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<210> 36
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Thr Gln
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<210> 40
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<400> 40
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<400> 41

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<400> 42
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<400> 43
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<210> 44
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Ala Gln Phe Val Lys Asp Leu Leu Leu His Leu Lys Lys Leu Phe Arg
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Glu

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<400> 45
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<210> 46
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Ser Ile Asn Leu Thr Ala Gly Met
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Ile Asn Val Ser Gly Cys Ser
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<210> 48
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Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser Ser Leu His Val
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Arg Asp Thr

<210> 49
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<212> PRT
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<400> 49
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<210> 50
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Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu
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<400> 52
Phe Asn Asn Phe Thr Val
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<210> 53
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<212> PRT
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<400> 54
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<211> 19
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Gln Val Ile

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Ser Leu Met Val
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<211> 20
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Val Gly Glu Leu
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Leu Phe Gln Val
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<212> PRT
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Leu Pro Ile Ala
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<211> 20
<212> PRT
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<400> 61
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<400> 66
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<212> DNA
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<400> 67

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aatcggccga c 71

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<212> DNA
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<400> 68
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